

In a new book, *Mind-Reach*, Russell Targ and Harold Puthoff claim that there is strong evidence for "remote viewing." Here, Ray Hyman disputes this contention. —Eds.

PSYCHICS AND SCIENTISTS: "MIND-REACH" AND REMOTE VIEWING

Ray Hyman

The dust jacket of *Mind-Reach* (New York: Delacorte, 1977) informs us that "this book is a lucid and fascinating record of historic experiments—historic because they put the seal of 'hard' physical science upon evidence that some degree of psychic ability is universal—a phenomenon straight out of science fiction that actually happened, and can be made to happen again in any laboratory! The scientists even offer a 'recipe' for developing your own ESP 'information channel.'"

The two scientists in question are Russell Targ and Harold Puthoff, both laser physicists at the prestigious Stanford Research Institute. As scientists, their credentials are impeccable. Targ has important patents to his credit in the laser field. Puthoff, a Stanford Ph.D., in addition to also having laser patents has coauthored a textbook in quantum physics. Although Margaret Mead, in the introduction to the book, writes that the evidence put forth does "not appear to be the work of true believers who set out to use science to validate passionately held beliefs," neither author is a novice in psychological research.

Targ's interest in psychic phenomena goes back some twenty years. Prior to the time covered by this book, he had done work with an ESP teaching machine and, he told me, he had investigated the famed psychic Peter Hurkos. Targ also claims to be an amateur magician, who not only has practiced conjuring but also is aware of the standard methods of deception. Puthoff, who has made it to the level of a Class III Operational Thetan in the Church of Scientology, had previously obtained funding to study the Backster Effect—the alleged ability of plants to sense by extrasensory means the thoughts of humans.

The research described in this book began in 1972 when both Targ and Puthoff came to the Stanford Research Institute. The major portion of their work involves remote viewing, a term they use to refer to phenomena that cover "a range of subjective experience variously referred to in the literature as astral projection (occult); simple clairvoyance, traveling clair-

voyance, or 'out-of-body' experience (parapsychological); exteriorization or disassociation (psychological); or auto-scopy (medical)." Remote viewing occurs when a subject is able to describe a target site even though he has no sensor basis for doing so. This can come about, according to the authors, by giving the subject the longitude and latitude of any place on the globe, or by sending a team of observers to a randomly selected site that is unknown to the subject.

In addition, the book contains research into other psychic phenomena. Studies are reported with an electronic random generator (ESP teaching machine); with attempts to influence magnetometers, compasses, and other instruments remotely with Uri Geller's attempts at psychically bending metal, dematerializing objects, seeing the face of a hidden die, and duplicating drawings from which he was shielded.

The authors present us with both "hard" and "soft" evidence. The "hard" evidence consists of outcomes that pass their strict criteria for having occurred under "rigorous" and "controlled" scientific conditions. If they cannot figure out any way that the results could have been produced by trickery, instrument artifact, inadvertent cuing, or accident, then they pass the test. "Soft" evidence is all the rest of the occurrences that intrigue the authors but that, for one reason or another, cannot pass the test on all the criteria.

Let's look first at what the authors claim as "hard" evidence. They state that "the primary achievement of this research has been the demonstration of high-quality 'remote viewing': the ability of experienced and inexperienced volunteers to view, by means of mental processes, remote geographical or technical targets, such as roads, buildings, and laboratory apparatus." This remote-viewing ability, they claim, is unaffected by distance or the type of shielding provided by a Faraday cage. It can also occur precognitively—that is, the subject can correctly describe the target site before the target team has randomly selected and visited it. They further claim that this sort of psychic ability seems to be predominantly a function of the right hemisphere of the brain, because accuracy is more in terms of geometric shapes and patterns than in interpretation and also because EEG activity seems to indicate this. They also claim that anyone can do this. They have succeeded with both experienced and inexperienced subjects. Indeed, they claim that no subject has failed to show the ability.

They also claim "hard" evidence for at least some subjects showing success on the electronic random generator. In the case of Uri Geller, they claim scientific evidence for normal perceptual abilities in divining the uppermost fa-



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a die in a closed box and in duplicating drawings made under conditions that precluded sensory contact.

The book is replete with accounts of striking and seemingly persuasive phenomena that the authors admit occurred under conditions that do not meet the standards for "hard" evidence. Geller was seemingly able to affect the magnetometer, affect a scale under a bell jar, move a TV picture in various directions, cause a compass needle to move, dematerialize part of a camera, and trigger off a number of "coincidences." The last chapter deals with anecdotes involving prophetic dreams, psychic cats, sympathetic magic, and exploring outer space via remote viewing.

What are we to make of all this? What is it that makes this work "historic"? Certainly it is not the fact that physicists are investigating and apparently finding evidence for psychic phenomena. In spite of implications to the contrary on the dust jacket and in Margaret Mead's introduction (she claims that one advantage of these experiments is that "they come out of physics, popularly believed to be the hardest of the hard sciences"), physicists have a history going back over a hundred years of investigating and endorsing psychic phenomena. In the nineteenth century there were such big names as Crookes, Lodge, Barrett, and Zoellner. Other well-known scientists who plunged into psychical research were Alfred Russel Wallace, Robert Hare, Charles Richet, and Claude Flammarion. Nor is it the general approach of Targ and Puthoff, which treats the subject as a full-fledged collaborator rather than a guinea pig. All of the previously mentioned scientists also went out of their way to make the investigative conditions "safe" and sympathetic for the alleged psychics.

What is new, if it stands up to further scrutiny, is the unprecedented consistency of the findings. They simply have no failures in their remote-viewing experiments. Experienced and inexperienced subjects succeed. Even skeptical visitors succeed when put through the protocols. (The authors slip into another meaning of "succeed" in this latter case. "Success" in the regular experiments is measured by the agreement of reports with actual target sites as obtained by a neutral judge; "success" in the case of visitors is measured by subjective judgment that a given description does seem to match, in part, the given site.)

If Targ and Puthoff have actually hit upon a formula for getting results with all subjects, and if these results can be replicated in independent laboratories as they claim, then indeed their work represents a major breakthrough in psychical research. Up to now, this field of endeavor has been plagued by inconsistencies, hidden pitfalls, and nonrepeatability. It has caused its most dedicated workers nothing but frustration. Here is what William James had to say in his last article on psychical research in 1909 (*William James on Psychical Research*, ed. by G. Murphy and R. O. Ballou [New York: Viking, 1969]).

For twenty-five years I have been in touch with the literature of psychical research, and have had acquaintance with numerous "researchers." I have also spent a good many hours . . . in witnessing (or trying to witness) phenomena. Yet I am theoretically no "further" than I was at the beginning; and I confess that at times I have been tempted to believe that the Creator has eternally intended this department of nature to remain baffling, to prompt our curiosities and hopes and suspicions all in equal measure so that, although ghosts and clairvoyances, and

rapes and messages from spirits, are always seeming to exist and can never be fully explained away, they also can never be susceptible of full corroboration.

Some sixty-six years after William James penned these words, the philosopher Antony Flew, after twenty years in psychical research, in an article in the November 1975 *New Humanist*, had this to say:

It seemed to me that the situation in this misbegotten area could be summed up by saying that there was too much evidence for one just to dismiss it as all a lot of nonsense, and enough to require that one should maintain a continuing interest in the field, even if a distant interest. On the other hand, it seemed to me then that, though there was too much for one just to reject the whole business out of hand as a lot of superstition, nevertheless there was no such thing as a reliably repeatable phenomenon in the area, and there was really almost nothing positive that you could point to with assurance; there were some bits of negative work you could point to with assurance, but that was all. The depressing thing about the subsequent twenty-two years is that, though people have

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gone on working in this area—perhaps more has been done in the last twenty-two years than in any comparable period before—it still seems to me that the general evidential situation is just the same.

We do not know yet whether Targ and Puthoff will be making similar laments at some future date.



Russell Targ (left) and Harold Puthoff (right) at SRI

Meanwhile, however, they have already encountered the inevitable frustrations that confront every researcher in this field. They have become the target for attacks from what they call the "Loyal Opposition." The specific members of the Loyal Opposition that they deal with are The Amazing Randi, Martin Gardner, Joe Hanlon, George Lawrence, and myself. In a chapter entitled "The Loyal Opposition—What Are They Loyal To?" Targ and Puthoff deal with their critics in an interesting manner.

The authors imply that they are aware that resistance to new and radical ideas plays a positive role in the development of science. But they have obviously been stung at the personal level. They describe what from their viewpoint constitutes a series of unethical and malicious misrepresentations of their work by the Loyal Opposition. And I am indicted for a breach of ethics in allegedly "leaking" information about my confidential visit to SRI to *Time* magazine.

Obviously, Targ and Puthoff are puzzled by what they take as fanatic and unfair criticism. So they try to account for it. "At first, we spun paranoid theories with Cold War overtones. Perhaps there really was a developing ESP gap, as implied by the Ostrander-Schroeder book *Psychic Discoveries Behind the Iron Curtain*. Perhaps United States efforts in the study of the paranormal were the target of a deliberate program of disinformation, with the press the unwitting accomplice." After planting this suggestion of a communist conspiracy, the authors dismiss it on the grounds that "the deep-rooted dis-

trust of the apparent paranormal functioning precedes the Cold War struggle by at least a century." (I read this just at the time that NBC put on its movie on the late Senator Joe McCarthy).

Instead, they graciously grant their critics good faith. The difficulty lies in the fact that the Loyal Opposition consists of individuals who cannot face up to the possibility that their world views may be wrong. Targ and Puthoff supply a psy-

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chological analysis of how the Loyal Opposition employs ever more extreme defenses to protect themselves from having to admit evidence that challenges the premises of their world view. They also point out that precognition and other psychic phenomena are compatible with current notions in quantum physics. This means, in their logic, that the burden of proof now lies with the critic who wants to deny such phenomena.

All this is unfortunate. By dismissing their critics as misguided fanatics, Targ and Puthoff miss the legitimate reasons for suspecting their work. If they were not so blinded by the search for psychological blocks in their opposition, the author might better see how they have supplied the critics with much of their ammunition. My own criticisms of their work cannot be simply dismissed as another case of someone who cannot tolerate challenges to his world view. As far back as December 1957, I committed to print my opinion that if ESP were proved to be a reality it would not provide a serious threat to science or other accepted views (in a review of *Experiments in Telepathy*, by S. G. Soal and F. Bateman, in the *Journal of the American Statistical Association*); and in his recent book, *The Search for Superman*, John Wilhelm writes of my position: "He has a personal belief structure that seemingly would suffer least if psychic phenomena became accepted as a scientific reality." I want to make this clear to emphasize that there are grounds other than dogmatic fanaticism to raise serious questions about the credibility of the evidence that Targ and Puthoff have offered us.

In challenging the validity of their findings, I also want to emphasize that I am not necessarily claiming that they are more vulnerable to error than other scientists plunging into this tricky area. But they are vulnerable. And what seems to be a serious problem is their unwillingness or inability to admit that they are vulnerable. Neither expertise in laser physics nor training in conjuring nor sincere desire to make their experiments error-free and fraud-proof suffices to immunize them from mistakes, misinterpretations, and deception. Indeed, their very insistence that they are free from such defects may actually enhance their vulnerability.

In a given specialty like laser physics, one which has a well-developed history and accepted standards of instrumentation, measurement, experimental paradigms, and other agreed-upon procedures, a scientist's colleagues know what is meant when he states that he gathered his data under controlled and

rigorous conditions. But when the same scientist transfers his efforts to a new field, especially one in which scientific development is in its initial stages, it no longer is obvious what constitutes an adequately "controlled" experiment. Even in standard areas of science it takes a long shake-down period before a new problem or phenomenon can be safely studied without fear of generating artifacts or overlooking important sources of variance. In the area of psychical research, especially in such uncharted areas of dealing with a flamboyant psychic who claims to bend metals or in remote viewing, we have no accepted and standardized procedures, no specialized instrumentation, no agreed-upon dimensions and units, no well-developed paradigms, and no accumulation of experience to inform us unambiguously of what sources of error most need attention.

In a visit to SRI on December 8, 1972, I saw little to increase my confidence in the authors' ability to conduct psychic investigations. Targ and Puthoff, on more than one occasion, have insisted that what I witnessed that day was irrelevant for evaluating their research on Uri Geller. In this book, they insist that I have only myself to blame if what I saw was uncontrolled and unscientific. It was my fault that I let Uri get away with what they call his standard coffee-table demonstrations. All this baffles me greatly. As far as I knew, I was part of a visiting team to ascertain if Targ and Puthoff had sufficient evidence and an adequate case to justify the ~~Advanced Research Projects Agency~~ funding their research on Uri Geller. Under the circumstances, I assumed that they would present to us the best case possible for Uri's powers and their competence to harness them. Just what did Targ and Puthoff have to gain by sitting back and letting Uri devote an entire day and their resources to a display of useless parlor tricks? Did they think that what they regarded as unscientific entertainments would nevertheless be sufficient to convince us to recommend financial support.

But this is not the place to go into differences about the visit. The point I want to make is how the authors and I differ on what is a "controlled" experiment. Targ and Puthoff say that the only controlled experiment that occurred during our visit to SRI was the one in which Uri Geller apparently duplicated a drawing that Robert Van de Castle had earlier sealed in an envelope. Here is what I observed, based upon the detailed notes I made at the time it occurred.

Van de Castle had brought a picture with him that he wanted Uri to duplicate by psychic means. When Uri learned that the picture had been clipped from a magazine, he was hesitant. He said that it would be better if it were something that Van de Castle had drawn himself. Van de Castle offered to draw a version of the picture from memory. Uri reluctantly agreed. Uri did not feel confident, but said he would give it a try. Van de Castle sealed his drawing in one opaque envelope and the magazine picture in another. Each was marked outside to identify it. Uri sent everyone out of the room except George Lawrence and myself. He had George place his hands on each envelope. Uri tried to get an impression. But nothing, he said, came through. He asked George to retain the envelopes and he would try later, maybe at lunch or after.

After lunch, while all alone with George, Uri tried again. Again nothing happened. Then Uri decided to try with Van de Castle, who, of course, knew what the drawings were. They went alone into a room. After a half-hour, Uri and Van de Castle emerged. They were obviously flushed with victory—

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they announced success, or at least partial success. The envelopes had been opened before they emerged! Van de Castle explained this obvious breach of protocol on the ground that Uri was impatient to know how well he had done. So Van de Castle and Uri opened the envelopes immediately to check out the drawings. It was not clear which one of them had opened the envelopes.

We asked what had taken place during the half-hour in the room. We were told that Van de Castle asked Uri how he could be of help. Uri suggested that Van de Castle keep his eyes closed and keep his hands over his eyes to better visualize what he wanted to project. Van de Castle claimed that during this long time with his eyes closed he had control of the envelopes. This meant, as elicited by further questioning, that Van de Castle had his elbow upon the envelope with his drawing in it. He freely admitted at that point, and again later, that the second envelope could have been out of his possession. As someone pointed out, Uri's drawing was a better match to the magazine picture than to Van de Castle's drawing. Targ commented that this was a perfect experiment.

This, then, is the experiment that Targ and Puthoff claim was done under controlled conditions. From my viewpoint, this fails at being a controlled experiment on a number of grounds: (1) Uri was alone with just one man and the envelopes for a half-hour; (2) Van de Castle had his eyes shut during this entire period; (3) Van de Castle was sure only that he had control of one envelope; (4) The envelopes had been opened prior to their emerging from the room (thereby destroying any evidence of possible tampering); (5) Uri's drawing was a better match to the picture that was in the envelope that Van de Castle admitted could have been out of his possession. This is just one example of why we cannot be satisfied by the simple declaration that the conditions were "controlled."

It is unfortunate that Uri Geller happened to Targ and Puthoff. Ironically, one of the reasons they give for not allowing me to see their regular experiments with Uri is that at that time they suspected that Uri might have been sent to test their competence. They hinted that I might have collaborated with Uri to trick them and then use this successful deception to discredit them as psychic investigators. Whether he was sent to SRI for this purpose or not, Targ and Puthoff will have a hard time convincing even some believers that Geller did not swindle them. They themselves, in trying to show how knowledgeable they are about magicians' tricks, describe how ~~Uri, as soon as he arrived at SRI, pulled the driver blindfold, tricked them.~~ Knowing full well that Uri was willing to trick them, they went ahead with their research program, fully confident that they could separate out the trickery from the real thing. More cautious investigators would have either immediately sent Uri back to his sponsor or treated all subsequent miracles with suspicion.

Because of the Geller affair, perhaps, the remote-viewing experiments become even more suspect than otherwise. In a sense, they are too good. Without question they are several orders of magnitude superior as experiments than the ones reported with Uri Geller. The protocols are described in much more detail, and we are given rather detailed descriptions of precautions taken against deception, inadvertent cuing, editing, and selection of cases. And the ultimate criterion of success is based upon a sophisticated statistical procedure.

So what is wrong? Without being on the scene it is hard to say, but there are some disturbing aspects. The authors go

into great detail about how the subject generates his description, how the target site is selected, and how the team is sent to it. They describe the judging procedure, but in much less detail. In fact, it is just in this detail that problems arise. The statistics and judging procedure assume independence of descriptions for each target site. But this is obviously violated by the experimental procedure. Immediately after the subject generates his description, he is taken to the target site to be given feedback on how well he has done. Although the reason for doing this may be understandable, it makes his next description no longer independent of the first target site. To give one example of how this might generate false hits, assume that the first site is a municipal swimming pool. The next day the subject will probably avoid describing features that obviously belong to a swimming pool. If the second site, say, is a marina, the subject, in the third protocol, would avoid describing things that obviously belong to a swimming pool or a marina, and so on. Such a situation, in principle, could suffice to give a judge sufficient information to make perfect matches at each site from the descriptions. We, of course, do not know if, in fact, such an artifact did actually produce their results. But the very fact that the assumption of independence was violated destroys the validity of their statistical computations. In future experiments, they will have to find a way to ensure independence (such as using only one target per subject and having the judge match a set of descriptions generated by different subjects).

Possibly just as serious is the lack of any description of precautions to ensure post-description security. After each description, the subject and the team of investigators all go to the target site and openly discuss how well the description fits the site. Good, or apparently good, descriptions will become topics of animated discussion. What precautions were taken to make sure that none of this gossip trickled back to potential judges? Similar comments could be made about security of the protocols, recording judges' ratings, randomizing protocols to give to judges, the order in which judges visit sites, and so on.

The authors make the strong claim that everyone whom they have run through their protocol has succeeded to "satisfaction." This is certainly not completely the case. I have talked with two individuals who went through this procedure who were definitely not convinced that they had succeeded beyond simple chance matching. And I know someone who has talked with another individual who also felt it did not work for him. Targ and Puthoff further claim that the remote-viewing experiment has been successfully replicated in several independent laboratories. But they mention only one other study by name of investigators and laboratory. In a footnote, they mention the study and say it consisted of a lengthy series. In a report put out by these authors, the "lengthy series" consists of eight trials, two of which they admit were defective. I know of one attempt to faithfully replicate the remote-viewing experiment as they described it in an article published in the Institute of Electrical and Electronics Engineers' journal; the results were completely negative.

All this suggests that the authors may not yet have found the magic formula for the repeatable ESP experiment. The history of the field is against them. And enough questions can be raised about their current work to raise doubts, at least for members of the Loyal Opposition. But, as always, time will tell. And if it turns out that they are correct after all, then I am ready to resign my membership in the Loyal Opposition.